



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/926,485	01/25/2002	Toshio Yamagiwa	107348-00179	5678

4372 7590 05/25/2004

ARENT FOX KINTNER PLOTKIN & KAHN  
1050 CONNECTICUT AVENUE, N.W.  
SUITE 400  
WASHINGTON, DC 20036

EXAMINER

FISCHER, JUSTIN R

ART UNIT	PAPER NUMBER
----------	--------------

1733

DATE MAILED: 05/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/926,485

Applicant(s)

YAMAGIWA, TOSHIO

Examiner

Justin R Fischer

Art Unit

1733

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chemizard (US 4,286,643, newly cited) in view of Beers (JP 07266454, of record) and optionally in view of either one of Chien (US 3,563,294, newly cited) or Reinowski (US 3,042,098, newly cited). As best depicted in Figure 1, Chemizard discloses a sealant-containing tire comprising a tire body, an outer liner 24 fastened to an inner surface of a tread of said tire body, and an inner liner 5 that defines an air chamber, wherein the outer liner and inner liner define an annular sealant chamber 23, 26. It is further evident from Figure 1 of Chemizard that the air chamber or tire cavity is partitioned by the inner liner. Regarding the inner liner, Chemizard only states that it is formed of a mixture having a base of airtight rubber (Column 1, Lines 52-56)- the reference is completely silent as to the 300% modulus of the inner liner. In any event, one of ordinary skill in the art at the time of the invention would have found it obvious to form the inner liner from a composition having a 300% modulus below 60 kgf/cm<sup>2</sup> because such compositions (those having low modulus and good flexibility) are extensively used in the tire industry and provide the benefits of good durability and resistance to cracking, as shown for example by Beers (Abstract and Table 2). It is particularly noted that each of the

Art Unit: 1733

inventive inner liner compositions disclosed by Beers in Table 2 (Examples 2-4, 6, and 8) have a 300% modulus that is between 3 and 3.68 MPa, which is equivalent to approximately 30-37 kgf/cm<sup>2</sup> and falls almost directly in the middle of the range defined by the claimed invention. Reinowski (Column 3, Lines 63-65) and Chien (Column 2, Line 37) are optionally applied since they further evidence the desirability of an "elastic" material for the inner liner or similar rubber layer in sealant-containing tire constructions.

It is emphasized that Chemizard is silent as to the inner liner composition and in view of Beers, it is recognized that the use of a low modulus, highly flexible innerliner composition provides the benefits of improved tire durability and improved crack resistance. Furthermore, the benefits of improved tire durability and improved crack resistance would be particularly desirable in a sealant-containing tire in order to avoid the cracks and the resulting propagation of cracks in the innerliner upon puncture.

### ***Response to Arguments***

3. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection. As correctly argued by applicant, neither Van Ornum, Sandstrom, Beers, nor Shimada teach an outer liner and an innerliner defining a sealant chamber, wherein the outer liner is fastened to the inner surface of the tread of the tire body and the inner liner separates the sealant chamber from an air chamber. In view of these newly added limitations, the rejection of claim 1 with Van Ornum has been withdrawn. However, newly cited Chemizard expressly teaches such a construction, as best depicted in Figure 1 and set forth above. Regarding the inner liner, while Chemizard is silent as to the composition of the inner liner (only stating that

Art Unit: 1733

it is formed of an airtight rubber), it is recognized in the tire industry that a low modulus, highly flexible innerliner improves tire durability and improves crack resistance, as shown for example by Beers. In this instance, each of the inner liner compositions has a 300% modulus below 40 kgf/cm<sup>2</sup>. Thus, one of ordinary skill in the art at the time of the invention would have been motivated to form the inner liner of Chemizard from a composition having a 300% modulus below 60 kgf/cm<sup>2</sup>. In particular, the above noted benefits would be desirable in a sealant-containing tire in order to avoid the premature cracking of the inner liner and activation of the sealant, thereby contributing to improved tire durability.

As to applicant's results in Tables 1 and 2, while they do show an improvement in puncture size and ability to eliminate air leakage, these results are not found to be unexpected in light of the benefits detailed by Beers. Beers specifically states that the use of a low modulus, highly flexible innerliner composition provides improved tire durability and improved crack resistance. Thus, one of ordinary skill in the art at the time of the invention would have had ample motivation to form the inner liner of Chemizard from a composition having a low modulus (below 60 kgf/cm<sup>2</sup>).

### ***Conclusion***

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 1733

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Justin R Fischer** whose telephone number is **(571) 272-1215**. The examiner can normally be reached on M-F (7:30-4:00).


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1733

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Justin Fischer

May 18, 2004

  
JEFF H. AFTERGUT  
PRIMARY EXAMINER  
GROUP 1300